

DOCKET NO. NG(ST)6757

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re patent application of

Applicant: Ian Robinson, et al.  
Serial No.: 10/706,723  
Filed: 12 November 2003  
For: *Delta-Sigma Digital-to-Analog Converter Assembly*  
Art Unit: 2819  
Examiner: Joseph L. Lature

RECEIVED  
CENTRAL FAX CENTER  
JUN 02 2005

**INFORMATION DISCLOSURE STATEMENT**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

1. Pursuant to 37 C.F.R. 1.97 and 1.98, and in compliance with 37 C.F.R. 1.56, the Office's attention is directed to the patents, publications and other information listed on the attached PTO-1449. A copy of each listed foreign patent document and other publication is enclosed. No U.S. Patents nor any published U.S. Patent Applications are enclosed.

Regarding any document, publication or other information for which a date is not given on the attached PTO-1449, Applicant(s) believe(s) the same may qualify as "prior" art to this application and should be treated accordingly, although Applicant(s) reserve(s) the right to contest the prior art status of any document, publication or information, should issue arise.

2. Regarding each listed document that is not in the English language, an English-language translation accompanies this Statement as indicated on the attached PTO-1449 or a concise explanation of the relevance of the document is set forth in the following document(s):

- (a) ☐ Copy of each English language version of a search report indicating the degree of relevance found by the foreign office of each document being submitted from the search report.
- (b) ☐ Attachment entitled "Concise Explanation of Relevance of Non-English Language Documents".

3. Pursuant to 37 C.F.R. 1.97(b) this Statement is being filed (one must be checked):

- (a) ☒ Within 3 months of the filing date or date of entry into the National Stage.
- (b) ☐ Before the mailing date of a first Office Action on the merits. If this Statement is not filed before the mailing date of a first Office Action on the merits, the required certification is given below or, in the absence thereof, the Office is authorized to charge the required fee set forth in 37 C.F.R. 1.17(p) to Deposit Account No. 20-0090 for consideration of this Statement.

**BEST AVAILABLE COPY**

- (c) \_\_\_\_\_ After the period set forth in 37 C.F.R. 1.97(b) but before the mailing date of either a final action or a notice of allowance.
- (1) \_\_\_\_\_ The required certification is given below, or
- (2) \_\_\_\_\_ Enclosed is a check covering the fee set forth in 37 C.F.R. 1.17(p) for consideration of this Statement, or
- (3) \_\_\_\_\_ Charge the fee set forth in 37 C.F.R. 1.17(p) to Deposit Account No. 20-0090.
- (d) \_\_\_\_\_ After the mailing date of either a final action or a notice of allowance, but before payment of the issue fee. Petition hereby is made for consideration of this Statement and the required certification is indicated below.
- (1) \_\_\_\_\_ Enclosed is a check covering the fee set forth in 37 C.F.R. 1.17(i)(1), or
- (2) \_\_\_\_\_ Charge the fee set forth in 37 C.F.R. 1.17(i)(1) to Deposit Account No. 20-0090.
4. Certification (if applicable)
- (a) ☒ The undersigned hereby certifies that each item of information contained in this Statement was cited in a communication from a foreign patent office in a counterpart foreign application not more than 3 months prior to the filing of this Statement.
- (b) \_\_\_\_\_ The undersigned hereby certifies that no item of information contained in this Statement was cited in a communication from a foreign patent office in a counterpart foreign application or, to the undersigned's knowledge after making reasonable inquiry, was known to any individual designated in 37 C.F.R. 1.56(c) more than 3 months prior to the filing of this Statement.
5. The Commissioner is hereby authorized to charge any additional fees or credit any overpayment to Deposit Account No. 20-0090.

Respectfully Submitted,

TAROLLI, SUNDHEIM, COVELL, & TUMMINO L.L.P.

By: Christopher P. Harris  
Christopher P. Harris  
Reg. No. 43,660

CUSTOMER NUMBER: 26294

TAROLLI, SUNDHEIM, COVELL & TUMMINO LLP  
526 Superior Avenue, Suite 1111  
Cleveland, Ohio 44114-1400  
(216) 621.2234

BEST AVAILABLE COPY

PTO/SB/08A (08-03)

Approved for use through 07/31/2006. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> (Use as many sheets as necessary)				<b>Complete if Known</b>	
				Application Number	10/706,723
				Filing Date	12 November 2003
				First Named Inventor	Ian Robinson
				Art Unit	2819
				Examiner Name	Joseph L. Lauture
Sheet	1	of	2	Attorney Docket Number	NG(ST)6757

U.S. PATENT DOCUMENTS					
Examiner Initials	Cite No. <sup>1</sup>	Document Number Number-Kind Code <sup>2,3</sup> (If Known)	Publication Date MM-DD-YYYY	Name Of Patentee Or Applicant Of Cited Document	Pages, Columns, Lines, Where Relevant Passages Or Relevant Figures Appear
		US-6,191,715B1	02-20-2001	Fowers	Fig. 1
		US-6,291,924B1	09-18-2001	Lau, et al.	Col. 6, line27-53 Fig. 13
		US-6,317,468B1	11-13-2001	Meyer	Fig. 2
		US-6,323,795B1	11-27-2001	Yang, et al.	Fig. 3
		US-2003/017931A1	09-25-2003	Gupta, et al.	Fig. 3
		US-2004/222870A1	11-11-2004	Ueda, et al.	Corresponds to WO 03/050949A1-provided for English language

FOREIGN PATENT DOCUMENTS						
Examiner Initials	Cite No. <sup>1</sup>	Foreign Patent Document Country Code-Number-Kind Code <sup>2,3</sup> (If Known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T <sup>4</sup>
		EP 0 878 903 A2	11-18-1998	Matsushita Electric Industrial Co., Ltd.	Figs. 1 & 16	
		WO 03/050949 A1	06-19-2003	Fujitsu Media Devices Limited	Abstract (English versions provided) (See EP 1 453 197A1 & US2004/222870A1)	
		EP 1 453 197 A1	09-01-2004	Fujitsu Media Devices Limited	Corresponds to WO 03/050949A1-provided for English language	
EXAMINER SIGNATURE				DATE CONSIDERED		

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional). 2 See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. 3 Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). 4 For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. 5 Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. 6 Applicant is to place a check mark here if English language Translation is attached. This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450. If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

BEST AVAILABLE COPY

PTO/SB/088 (04-03)

Approved for use through 04/30/2003. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> (Use as many sheets as necessary)		<b>Complete if Known</b>		
		Application Number	10/706,723	
		Filing Date	12 November 2003	
		First Named Inventor	Ian Robinson	
		Art Unit	2819	
		Examiner Name	Joseph L. Lauture	
Sheet	2	2	Attorney Docket Number	NG(ST)6757

**NON PATENT LITERATURE DOCUMENTS**

Examiner Initials	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, city and/or country where published	T <sup>2</sup>
		YONGHONG GAO, ET AL.: "A Fifth-Order Comb Decimation Filter for Multi-Standard Transceiver Applications"; Circuits and Systems, 2000 Proceedings, ISCAS 2000 Geneva, The 2000 IEEE International Symposium on May 28-31, 2000, Piscataway, NJ USA, IEEE, vol. 3, 28 May 2000 (2000-05-28), pages 89-92, XP010502474, ISBN: 0-7803-5482-6 paragraph 0002; Figure 4a	
		MAULIK P C ET AL: "A 16-Bit 250-KHZ Delta-Sigma Modulator and Decimation Filter"; IEEE Journal of Solid-State Circuits, IEEE Inc. New York, US, vol. 35, no. 4, 1 April 2000 (2000-04-01), pages 458-466, XP001009165, ISSN: 0018-9200; abstract	
		BIRRU D: "Use of Comb Filters for Efficient VLSI Implementation of Reduced Clock Frequency Noise Shapers"; Electronics Letters, IEE Stevenage, GB, vol. 32, no. 14, 4 July 1996 (1996-07-04), pages 1268-1270, XP006005385, ISSN: 0013-5194, abstract	
		ADLER E L: "Surface Acoustic Wave Devices Fundamentals, Current Status, and Future Trends"; NPL, 17 May 1994 (1994-05-17), pages 18-18, XP010269729 Canada; the whole document.	
		S.R. NORSWORTHY, R. SCHREIER, G.C. TEMES: "Delta-Sigma Data Converters"; 1997, Wiley-Interscience, United States of America, XP002322216; pages 309-313, 406-408, 410-421, 197-199, 442-445, 390-394.	
		CHU S ET AL: "Multirate Filter Designs using Comb Filters"; IEEE Transactions on Circuits and Systems, IEEE Inc. New York, US, vol. CAS-31, no. 11, November 1984 (1984-11), pages 913-924, XP002049419 paragraph 0111	
		ABU-AL-SAUD W A ET AL: "Modified CIC Filter for Sample Rate Conversion in Software Radio Systems"; IEEE Signal Processing Letters IEEE USA, vol. 10, no. 5, 5 May 2003 (2003-05-05), pages 152-154, XP002322375 ISSN: 1070-9908, figure 1	
		GALTON I: "Delta-Sigma Data Conversion in Wireless Transceivers" IEEE Transactions on Microwave Theory and Techniques, IEEE Inc. New York, US, vol. 50, no. 1, part 2, January 2002 (2002-01), pages 302-315, XP001085552 ISSN: 0018-9480, paragraph 0001	
		HURST P J ET AL: "Finite Impulse Response Switched-Capacitor Filters for the Delta-Sigma Modulator D/A Interface"; IEEE Transactions on Circuits and Systems, IEEE Inc. New York, US, vol. 38, no. 11, 1 November 1991 (1991-11-01), pages 1391-1397, CP000270297, figure 2	

Examiner Signature	Date Considered
--------------------	-----------------

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional). 2 Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 120 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, Washington, DC 20231.

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

**BEST AVAILABLE COPY**